

**CLAIMS**

1. A coating composition for paper and other substrates, the composition comprising an aqueous suspension of a particulate pigment together with a binder,  
5 wherein the particulate pigment comprises:
  - (a) a first component which is a precipitated calcium carbonate consisting predominantly of aragonitic or rhombohedral particle shapes or of aragonitic and rhombohedral particle shapes in a weight ratio of between about 40:60 and about 60:40 aragonitic:rhombohedral, and a second component which is a processed particulate hydrous kaolin clay having a shape factor greater than or equal to about 25 and a steepness greater than or equal to about 20; or  
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  - (b) a first component which is a fine particulate calcium carbonate consisting predominantly of particles having a generally spherical particle shape, and a second component which is a processed particulate hydrous kaolin clay having a shape factor greater than or equal to about 45 and a mean equivalent particle diameter ( $d_{50}$ ) less than about 0.5  $\mu\text{m}$ ; or  
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  - (c) a first component which is a precipitated calcium carbonate consisting predominantly of aragonitic and rhombohedral particle shapes in a weight ratio of between about 40:60 and about 60:40 aragonitic:rhombohedral, and a second component which is a processed particulate hydrous kaolin clay having a shape factor less than about 25.  
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2. A coating composition according to claim 1, wherein the binder forms from about 4% to about 30% of the solids of the composition on a dry weight basis.
3. A coating composition according to claim 1, wherein the binder comprises a modified starch.  
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4. A coating composition according to claim 3, wherein the binder further comprises a component other than starch.
5. A coating composition according to claim 3 or 4, further comprising: one or more cross linkers; one or more water retention aids; one or more viscosity modifiers  
30 and/or thickeners; one or more lubricity/calendering aids; one or more dispersants; one or more antifoamers/defoamers; one or more dry or wet pick improvement

additives; one or more dry or wet rub improvement and/or abrasion resistance additives; one or more gloss-ink hold-out additives; one or more optical brightening agents (OBA) and/or fluorescent whitening agents (FWA); one or more dyes; one or more biocides/spoilage control agents; one or more levelling and evening aids; one or more grease and oil resistance additives; one or more water resistance additives; one or more additional pigments; or any combination thereof.

5 6. A coating composition according to claim 1, consisting essentially of an aqueous suspension of the particulate pigment, the binder and optional additional ingredients selected from the ingredients defined in claim 5, with less than about 10% by weight of other components.

10 7. A method for preparing a coating composition according to claim 1, which comprises mixing the particulate pigment and the binder into an aqueous liquid medium to prepare a suspension of the solid components therein.

15 8. A pigment composition for use in preparing the coating composition of the invention, the pigment composition comprising a mixture of particulate materials consisting of or including:

20 (a) a first component which is a precipitated calcium carbonate consisting predominantly of aragonitic or rhombohedral particle shapes or of aragonitic and rhombohedral particle shapes in a weight ratio of between about 40:60 and about 60:40 aragonitic:rhombohedral, and a second component which is a processed particulate hydrous kaolin clay having a shape factor greater than or equal to about 25 and a steepness greater than or equal to about 20; or

25 (b) a first component which is a fine particulate calcium carbonate consisting predominantly of particles having a generally spherical particle shape, and a second component which is a processed particulate hydrous kaolin clay having a shape factor greater than or equal to about 45 and a mean equivalent particle diameter ( $d_{50}$ ) less than about 0.5  $\mu\text{m}$ ; or

30 (c) a first component which is a precipitated calcium carbonate consisting predominantly of aragonitic and rhombohedral particle shapes in a weight ratio of between about 40:60 and about 60:40 aragonitic:rhombohedral, and a

second component which is a processed particulate hydrous kaolin clay having a shape factor less than about 25.

9. A pigment composition according to claim 8, when present as a dry particulate mixture.
- 5 10. A pigment composition according to claim 8, when present as a suspension of the particles in a liquid medium.
11. A method for preparing a coated gloss paper which comprises applying to the paper a composition according to any one of claims 1 to 6, to coat the paper, and calendering the paper to form a gloss coating thereon.
- 10 12. A paper coated with a gloss coating which is the dry residue of a composition according to any one of claims 1 to 6.
13. A paper according to claim 12, which is a coated mechanical paper.
14. A paper according to claim 12, which is a coated lightweight coated paper (LWC).

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